Model portfolios Investor fact sheet

John Hancock Multi-Asset Income Model Portfolio

Strategy

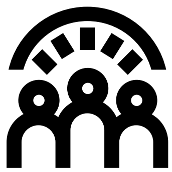
Diversified income potential
Pursuing income opportunities in multiple asset classes, including global fixed-income and dividend-paying equity investments

Multimanager approach
Tapping a broad range of industry talent in and outside of John Hancock across a variety of asset classes and investment styles

Best of both worlds
Blending mutual funds, ETFs, and low-cost active asset allocation to reduce the impact of expenses on portfolio returns

Integrating asset allocation and manager research

For more than 30 years, our multi-asset solutions team has combined asset allocation with manager research and oversight to seek better outcomes for investors.



Multi-asset solutions team

- Portfolio managers/strategists
- Model portfolio construction and delivery

59 **investment professionals**

- 33 CFA charterholders
- 2 Ph.D.s

Manager research team

Investment manager due diligence and oversight

28 **manager research professionals**

- 31 professional designations
- 19 advanced degrees

Managed by

Manulife Investment Management

Established asset manager with global resources and expertise extending across equity, fixed-income, and alternative investments as well as asset allocation strategies

Nathan W. Thooft, CFA
On the portfolio since 2019
Investing since 2000

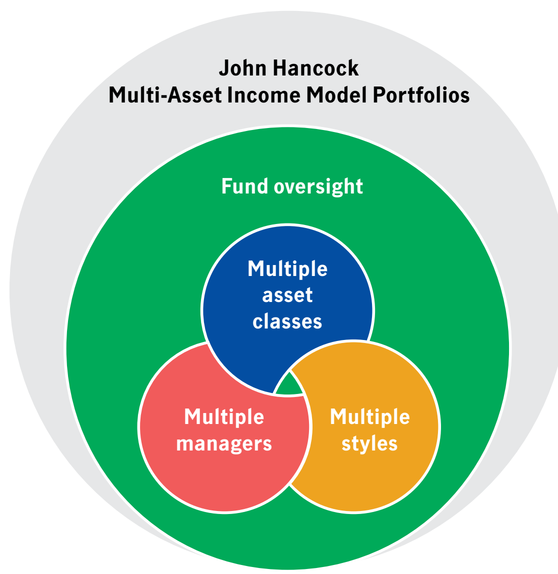
Bruce G. Picard, CFA
On the portfolio since 2019
Investing since 2000

Christopher Walsh, CFA
On the portfolio since 2019
Investing since 2002

Blending complementary managers from around the world

Our method delivers layers of diversification for investors in our asset allocation portfolios.

- Oversight
- Multiple asset classes
- Multiple managers
- Multiple styles



A leader in asset allocation

Multimanager approach since 1988 and model portfolios since 2011

1988
Firm introduces multimanager approach to investing

1995
Multimanager asset allocation portfolios for retirement plans

2005
Target-risk portfolios for individuals

2009
Alternative Asset Allocation Fund

2011
Asset allocation model portfolios

2016
U.S. sector rotation portfolios

2019
Over $100 billion in multi-asset portfolios under management

Quarterly commentary

Highlights

- Most major equity and bond markets ended the quarter with negative returns.
- The portfolio generated negative total returns and trailed its benchmark.
- Asset allocation decisions detracted from performance while manager selection was positive.

Market review and outlook

Global equities declined, continuing the downtrend that occurred in the first six months of the year. Although investor sentiment was actually fairly upbeat in July and the first two weeks of August—reflecting expectations that the U.S. Federal Reserve (Fed) would pivot to a less restrictive monetary policy—subsequent comments from Fed Chair Jerome Powell made it clear that the central bank would continue to raise interest rates aggressively. The prospect of continued rate hikes, in turn, fueled worries about the potential for a recession and a downturn in corporate earnings. These events, along with ongoing geopolitical concerns and unusual volatility in the global currency and fixed-income markets, caused stocks to fall precipitously from their August highs and ultimately close the quarter in negative territory.

Global bond markets declined as bond yields continued to climb around the world. Investors remained focused on elevated inflation rates, which surged to 9% in the United States and 10% in Europe during the quarter, and the efforts of central banks to combat these inflationary pressures by aggressively raising short-term interest rates. Many of the world's major central banks—including the Fed, the Bank of Canada, the Bank of England, and the European Central Bank—enacted multiple rate hikes in the third quarter. In many cases, these actions pushed benchmark interest rates to their highest levels in more than a decade.

Despite growing concerns that central bank rate increases could lead to a global recession, bond yields rose broadly around the globe during the quarter, which put downward pressure on bond prices. On a regional basis, bond markets in the Asia-Pacific region held up the best, while European markets declined the most. On a sector basis, high-yield corporate bonds posted the best returns, while sovereign government bonds underperformed.

Contributors and detractors

The portfolio posted negative absolute returns, as both equities and bonds were negative during the period, and also trailed its benchmark. Underperformance was driven largely by asset allocation decisions. From an asset allocation perspective, an underweight in high yield and an overweight in emerging-market bonds weighed on relative performance. However, this was partially offset by an overweight in short duration high yield within broader high yield. On the equity side, the overweight in international high-yielding equity and underweight in U.S. high-yielding equity also weighed on returns. The portfolio was also helped by an underweight in real estate investment trusts, which struggled during the period.

Overall, manager selection boosted relative returns. The top contributors were John Hancock Bond Fund, John Hancock Global Shareholder Yield Fund, and John Hancock Strategic Income Opportunities Fund. The top detractors from a manager perspective were John Hancock High Yield Fund, John Hancock Emerging Markets Debt Fund, and John Hancock Real Estate Securities Fund.

Portfolio changes

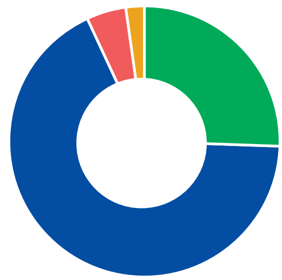
We made multiple trades during the period. Within fixed income, we continued the trend of previous trades and eliminated John Hancock Floating Rate Fund while increasing the allocation to U.S. core bonds by adding to John Hancock Corporate Bond ETF and John Hancock Bond Fund. Bank loans had been relative outperformers versus other fixed-income asset classes driven by their shorter duration posture. This outperformance had eliminated much of their yield advantage. Investment-grade corporate bonds, after recent underperformance, now offer relatively more attractive yields. This trade also improved the quality of the overall portfolio while further closing our duration underweight.

Within equity, we lowered exposure to the U.S. and international high-dividend ETFs and moved the proceeds to John Hancock Global Shareholder Yield Fund. This strategy has a higher quality and more conservative stance. The shift toward higher quality had minimal effect on the portfolio yield.

Distinguishing features

- Cost-efficient implementation of mutual fund and ETF strategies
- Diversified across multiple distinct asset managers

Strategy allocation (%)



Underlying fund	Ticker	Manager	Current quarter
Equity			
John Hancock Global Shareholder Yield Fund	JGYIX	Epoch Investment Partners	11.47
Vanguard High Dividend Yield ETF	VYM	Vanguard	7.33
iShares International Select Dividend ETF	IDV	BlackRock	2.98
Vanguard FTSE Emerging Markets ETF	VWO	Vanguard	—
John Hancock Global Equity Fund	JGEFX	Manulife Investment Management	2.49
iShares Preferred and Income Securities ETF	PFF	BlackRock	—
Total equity			**24.27**
Fixed income			
John Hancock High Yield Fund	JYHIX	Manulife Investment Management	18.59
John Hancock Bond Fund	JHBIX	Manulife Investment Management	23.06
John Hancock Emerging Markets Debt Fund	JMKIX	Manulife Investment Management	8.07
John Hancock Strategic Income Opportunities Fund	JIPIX	Manulife Investment Management	6.77
John Hancock Floating Rate Income Fund	JFIIX	Bain Capital Credit	—
SPDR Bloomberg Short Term High Yield Bond ETF	SJNK	State Street Global Advisors	3.83
John Hancock Corporate Bond ETF	JHCB	Manulife Investment Management	2.96
Total fixed income			**63.27**
Alternatives			
John Hancock Real Estate Securities Fund	JABGX	Wellington	2.50
John Hancock Infrastructure Fund	JEEIX	Wellington	1.98
Total alternatives			**4.49**
Cash			2.00
Total underlying expenses[1]			0.56

See the conflicts disclosure on the last page for further information.

1 Morningstar, as of the date of the material. Weighted average annual net expense ratio is provided based on aggregation of the underlying fund fees. Share classes used for calculation may not be available to all investors, and expense ratios charged may vary.

Average annual total returns	**QTD**	**YTD**	**1 year**	**3 year**	**5 year**	**10 year**	**Inception 11/1/19**
Multi-Asset Income Model Portfolio Composite, gross of fees	2.63	-14.24	-13.12	-0.73	—	—	-0.73
Multi-Asset Income Model Portfolio Composite, net of fees	2.38	-16.36	-15.69	-3.67	—	—	-3.67
Blended benchmark[2]	2.61	-14.06	-12.52	-0.54	—	—	-0.54

Source: Manulife Investment Management (a Manulife company) as of the date shown on page 1, unless otherwise indicated.

2 A custom blended benchmark reflects the portfolio's asset allocation under normal conditions. This custom blended benchmark comprises 30% Bloomberg U.S. Corporate High Yield Bond Index, 25% Bloomberg U.S. Aggregate Bond Index, 15% MSCI USA High Dividend Yield Index, 13% Bloomberg Emerging Markets (EM) USD Aggregate Index, 10% MSCI World ex USA High Dividend Yield Index, 5% MSCI U.S. REIT Index, and 2% FTSE Three-Month Treasury Bill Index. It is not possible to invest directly in an index.

John Hancock Investment Management LLC and Manulife Investment Management (US) LLC are affiliated SEC registered investment advisers using the brand name John Hancock Investment Management.

Important performance information

Performance figures shown are of the Multimanager Model Portfolio Composite, managed by Manulife Investment Management, gross of fees, and represents a single, non-fee-paying affiliated seed capital account, which is representative of the investment strategy. Net performance results reflect the deduction of, from the respective gross-of-fee returns, the highest industry-applied bundled fees (3.00% annually). Actual fees may vary depending on, among other things, the applicable fee schedule and portfolio size. Performance may not be reflective of a full market cycle. The short-term results of a relatively new model portfolio are not necessarily indicative of its long-term prospects. Manulife Investment Management claims compliance with the Global Investment Performance Standards (GIPS®). To receive a complete list and description of Manulife Investment Management's composites and/or a presentation that adheres to the GIPS, contact our institutional sales team at 888-332-7132.

Performance does not reflect the platform or program sponsor, trading costs, administrative management fees, or other expenses that would be incurred by a participant portfolio and would reduce returns. Performance does reflect the deduction of investment expenses for the underlying funds. The results do not represent actual trading, which is conducted by the platform or program sponsor on behalf of the client. It should not be assumed that investors would have obtained the performance shown had they invested in the manner shown and does not represent performance that any third-party investor actually attained. Actual performance may differ substantially from the performance presented. Returns for periods shorter than one year are cumulative. The performance presented is based on an assumption that the trades were executed at the same time as the model. The performance of your account may materially differ from the performance shown due to assumptions that include, but are not limited to, trade execution timing; your investment advisor, not John Hancock Investment Management, determines when to implement trade in the account; differences in market conditions; client-imposed investment restrictions; the timing of client investments and withdrawals; fees payable; foreign exchange rates; and account size.

Performance shown does not reflect the performance of model-based program accounts managed by your investment advisor using model portfolios. Your investment advisor may or may not add model portfolios in your account. John Hancock Investment Management is not responsible for determining the suitability or appropriateness of a strategy based on the model portfolios. John Hancock Investment Management does not have investment discretion of your account and does not place trade orders for your account. All information and data, including allocations, are subject to change.

The portfolio's performance depends on the advisor's skill in determining asset class allocations, the mix of underlying funds, and the performance of those underlying funds. The portfolio is subject to the same risks as the underlying funds and exchange-traded funds in which it invests: Stocks and bonds can decline due to adverse issuer, market, regulatory, or economic developments; foreign investing, especially in emerging markets, has additional risks, such as currency and market volatility and political and social instability; the securities of small companies are subject to higher volatility than those of larger, more established companies; and high-yield bonds are subject to additional risks, such as increased risk of default. Liquidity—the extent to which a security may be sold or a derivative position closed without negatively affecting its market value, if at all—may be impaired by reduced trading volume, heightened volatility, rising interest rates, and other market conditions. Owning an ETF generally reflects the risks of owning the underlying securities it is designed to track, which may cause lack of liquidity, more volatility, and increased management fees. Hedging and other strategic transactions may increase volatility of a portfolio and could result in a significant loss. The principal value of each portfolio is not guaranteed, and you could lose money at any time.

This material is for informational purposes only and is not intended to be, nor shall it be interpreted or construed as, a recommendation or providing advice, impartial or otherwise, regarding any security, mutual fund, ETF, sector, or index. Investors should consult with their financial professional before making any investment decisions. Manulife Investment Management (US) LLC performs asset allocation for the models and other investment-related services. John Hancock Investment Management nor its affiliates offer tax advice. Investors should consult with their tax advisor regarding their specific situation. Certain of the assumptions have been made for modeling purposes and are unlikely to be realized. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Model returns have many inherent limitations and may not reflect the impact that material economic and market factors may have had on the decision-making process if client funds were actually managed in the manner shown. Changes in the assumptions may have a material impact on the model returns presented; other periods selected may have different results, including losses. There can be no assurance that an account managed in accordance with the model will achieve profits or avoid incurring substantial losses. This portfolio is only available through investment professionals. Not all strategies may be available on all platforms, and fees and terms may vary. Past performance does not guarantee future results.

Conflicts disclosure

The information in the charts shown reflects the current portfolio allocations across the underlying model portfolios. Allocations are as of the date indicated, are subject to change, and should not be relied on as current thereafter.

Certain model portfolios may include ETFs and mutual funds that are managed by an unaffiliated investment manager (unaffiliated funds) or an affiliate (affiliated funds). Recommendation of the model portfolios that use affiliated funds raises conflicts of interest. To the extent that the advisor does use affiliated funds as the components of the model portfolios, this will generate advisory and other fees for John Hancock Investment Management (a Manulife company) and, in certain cases, its affiliates, when intermediary accounts and other persons use the model portfolios, and the management fees of affiliated funds may be higher than fees charged by other funds. Clients should review any information provided by the managed account program sponsor for further details regarding the extent to which model portfolios provided may include affiliated funds. In addition, affiliates may engage the investment managers that are recommended or included in the model portfolios as subadvisors to the John Hancock funds or have other business relationships with such investment managers. Some sponsors and intermediaries have other business relationships with John Hancock Investment Management or its affiliates.

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